Preventing Pipeline Oil Spills In the Pacific OCS Region

Presented by
Theresa Bell, Minerals Management Service

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MMS, part of the U.S. Department of the Interior, oversees 1.76 billion acres of the Outer Continental Shelf, managing offshore energy and minerals while protecting the human, marine, and coastal environments.
Pipelines – Preventing Oil Spills

• Why Pipeline Inspections?
• Statistics – Causes of Pipeline Failures
• Overview of Pacific OCS Region Pipeline Inspection Program
• Type of Pipeline Inspections and Tools
• Current Status of Inspections
• Continued Prevention of Oil Spills
Why Pipeline Inspection Program?
How does this relate to offshore?

- Media attention on industry
- Corrosion can be a problem in offshore pipelines
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Distribution by Cause of Failure
All Pipelines in Pacific Region in last 12 yrs

- Corrosion: 44%
- Failed Valve/Connection: 25%
- Operational Error: 25%
- Construction: 6%
GOM Region Distribution by Cause of Failure
(Not including 2005)

Corrosion 55.0%
Nat. Hazard 17.9%
Impact 6.8%
Structural 5.7%
UnKnown 5.6%
Material 2.8%
Other 3.9%
3rd-Party 1.2%
Erosion 0.6%
Construction 0.4%
Fire 0.1%
Pipelines – Preventing Oil Spills

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• **Overview of Pacific OCS Region**
  Pipeline Inspection Program
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Overview of Inspection Program

• In 1990, MMS Pacific OCS Region pipeline inspection program was established in the Pacific OCS Region

• In general, external and internal inspections every other alternating year

• Cathodic Protection (CP) survey every year

• Remediation plan must be submitted for safety or fishing hazard
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Type of Pipeline Inspections and Tools

- External inspections conducted by remote operated vehicle or side scan sonar
- Used to detect potential external problems including spans, debris, coating damage
Type of Pipeline Inspections and Tools

- Internal inspections conducted by intelligent pigs, a.k.a. “smart” pigs
- Used to detect wall loss (corrosion) and some dents
How MFL Works?

- Flux Field around a magnet
- Flux field around a magnet in contact with a pipe
- Flux field around a magnet in contact with a pipe with a defect
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Current Pipeline Inspection Status

- All oil and gas pipelines externally inspected
- All oil and gas pipelines internally inspected except one pipeline due to asphaltene build-up
Success of the Program

Repairs without Leaks in Pacific OCS Region

- 1998: 1
- 1999: 5
- 2000: 0
- 2001: 1
- 2002: 2
- 2003: 3
- 2004: 2
- 2005: 3
External Corrosion
Repair of Pipeline Riser
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Continued Prevention of Oil Spills

• Maintenance

• Pipeline cleaning program

• Corrosion Monitoring program that includes:
  - Evaluating inhibitor use
  - Testing product, water and pigging debris
  - Corrosion coupons
  - Internal and External inspections

• Continuously evaluate effectiveness of Corrosion Monitoring program
Agency & Company Cooperation

- MOA between State & Federal agencies
- Joint Inspections
- Information sharing
In Closing

Working together and having a good maintenance, corrosion monitoring and inspection programs can help prevent pipeline oil spills